

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

UNITED STATES OF AMERICA

v.

MEHDI NIKPARVAR-FARD,
a/k/a MEDI ARMANDI,
Defendant.

Criminal Action

No. 18-101-1 (GEKP)

**DEFENDANT MEHDI NIKPARVAR-FARD'S RULE 16(b)(1)(iii) SUMMARY OF
ANTICIPATED EXPERT TESTIMONY OF DR. IMRAN MUNGRUE**

Defendant Mehdi Nikparvar-Fard, under Federal Rule of Criminal Procedure 16(b)(1)(iii), provides notice that he intends to call Dr. Imran Mungrue as an expert witness at trial in this action, and provides the following summary of Dr. Mungrue's opinions, the bases and reasons for those opinions, and Dr. Mungrue's qualifications:

1. Dr. Mungrue will testify about his qualifications to provide expert testimony as to his opinions summarized below, based upon Dr. Mungrue's professional experience set forth in his Curriculum Vitae, a copy of which is attached as **Exhibit A**.

2. Dr. Mungrue reviewed materials produced by the government in this case (including Millennium UDT Radar Reports and patient charts), publicly available medical literature, and summary reports related to Advanced Urgent Care.

3. Dr. Mungrue will testify that he reviewed and analyzed the Urine Drug Tests (UDT) to determine whether a patient tested positive for an illicit drug or negative for the prescribed prescription. Dr. Mungrue's determination was based upon his review of the corresponding patient chart to determine if there was a prescription written for that patient, within the timeframe of the UDT.

4. Dr. Mungrue will further testify that he summarized the results of his analysis of the Millennium UDT Radar Reports and patient charts from Advanced Urgent Care, and

compared these with publicly available medical literature. He will provide his opinion on how the results of his analysis compare to the publicly available medical literature.

Respectfully submitted,

A handwritten signature in purple ink, appearing to be 'Imran Mungrue', written over a light blue rectangular background.

By: _____
Imran Mungrue, Ph.D.

Exhibit A

Imran Mungrue

Prepared on: December 15, 2022

Imran Mungrue

EMPLOYMENT

Inksplash

2022- Contract Consultant- Writer

Peak Logic

2022- Contract Consultant- Scientific affairs

QYK Brands LLC

2021 Contract- Consultant Biochemist Viral Antigen Assay Development

Acadia Lead Management services

2021 Blog Author

Louisiana State University Health- New Orleans, LA.

03-11/2021 Assoc Professor - Genetics

2012-03/2021 Asst Professor- Pharmacology and Experimental Therapeutics

2012-2021 Associate Member- School of Graduate Studies

2017-2021 Adjunct Member- Cardiovascular Center of Excellence

Post-Doctoral Fellow: University of California- Los Angeles, CA.

2005-2012 Department of Medicine- Division of Cardiology- Aldons J. Lusis

Post-Doctoral Fellow: University of California- San Francisco, CA.

2003-2005 Department of Physiology- Neuroscience- David S. Bredt (Currently Global Head of Discovery- Neuroscience: Johnson & Johnson)

EDUCATION

PhD. Dept of Laboratory Medicine and Pathobiology-University of Toronto

January 1998-November 2003, Mentors: Drs Mansoor Husain (Currently Director of the Toronto General Hospital Research Institute) & Duncan J. Stewart (Currently Vice-President Research: The Ottawa General Hospital & Professor: University of Ottawa)

Honours BSc. Molecular Biology and Biotechnology-McMaster University

September 1992-April 1996

email: imungrue@yahoo.com

http://www.medschool.lsuhsu.edu/pharmacology/mungrue_home.aspx

2224 Royal St, New Orleans, LA, 70117

(310) 909-6934

Imran Mungrue

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AWARDS

Competitive Grants:

(2021-2022) LSU- Research and Technology Foundation: Leverage Innovation for Technology Transfer- LIFT2 award (Multidisciplinary State-wide competition): **\$50,000**
Project: "Proof of concept using a barcoded collection of phage displayed SARS-CoV-2 S1 protein for precision multiplexed serological analysis."
Role: Lead Principal Investigator

(2019-2021) National Institutes of Health- NIGMS-R21: **\$275,000**
Project: "Proof of principle for a Scalable Multiplex Proteome Quantitation Technology."
Role: Lead Principal Investigator (Grant# GM129653-01)

(2019) Atomwise Inc- Artificial Intelligence Molecular Screen Award (AIMS): **This award provides virtual screening of compounds to generate small molecule inhibitors of the CHAC1 protein.**

Project: "Evaluating CHAC1 small molecule inhibitors for heart failure in mice."
Role: Lead Principal Investigator

(2017-2022) NIH- R25: LSU- Health New Orleans Post-Baccalaureate Research Education Program (PREP) in Biomedical Sciences: **\$263,638/yr**
Role: Collaborator and Mentor; PIs: Lisa Harrison-Bernard, Fern Tsien, Patricia Molina, and Kathy McDonough (Grant# 1R25GM121189-01)

(2016-2017) American Heart Association-National Affiliate (Nation-wide competition): Summer Innovative research Grant: **\$75,000/yr (Completed)**
Project: "A novel method for Simultaneous Proteome Quantitation in biological samples."
Role: Lead Principal Investigator (Grant# 16IRG27330013)
Raw Score: 1.36 (Score scale 1 to 5; 1.0-1.4 considered excellent)
Percentile rank: 9% (Awarded in first application)

(2015-2017) LSU- Research and Technology Foundation: Leverage Innovation for Technology Transfer- LIFT2 award (Multidisciplinary State-wide competition): **\$45,000 (Completed)**
Project: "Proof of concept for a new product allowing proteome scale quantitation."
Role: Lead Principal Investigator (Grant# LIFT-15A-3)
Raw Score: 87/100 (Highest score state-wide: 91/100)
Percentile rank: 11% (Awarded in first application)

(2016-2017) LSU- Health New Orleans- Bridge Grant: **\$50,000/yr (Completed)**
Project: "Determining roles of the pro-apoptotic UPR gene CHAC1 in atherosclerosis."
Role: Lead Principal Investigator
First Submission: 07/2015, Outcome: 10/2015 (Not funded)
Resubmitted: 11/2015, Outcome: 02/2016 Awarded

(2016) Center for the Advancement of Science in Space- Research proposal: **This award provides biological tissues from mice flown in space. (Completed)**

email: imungrue@yahoo.com
http://www.medschool.lsuhsu.edu/pharmacology/mungrue_home.aspx
2224 Royal St, New Orleans, LA, 70117
(310) 909-6934

Imran Mungrue

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Project: "Interrogating the Unfolded Protein Response in Microgravity-Induced Osteoporosis and Sarcopenia."

Role: Lead Principal Investigator

(2014-2017) NSF- REU Site: Research Experiences for Underrepresented Minority Undergraduates in Basic Science and Genetic Research at LSU-Health New Orleans:

\$295,635 (Completed)

Role: Collaborator; Pls: Fern Tsien, Alberto Musto and Ham Farris (Grant# 1359140)

(2012-2016) National Institutes of Health- NHLBI-R00 award: **\$249,000/yr (Completed)**

Project: "Determining roles of the pro-apoptotic UPR gene CHAC1 in atherosclerosis."

Role: Lead Principal Investigator (Grant# HL094709)

Grant Reviewer:

(2020, November) NIH: ZAI1 LAR-X (J5) 1: Emergency awards: Rapid investigation of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease 2019 (COVID-19), NIAID R21/R01

(2020, August) NIH: ZCA1 GRB-I (A): Emergency awards: SARS-CoV-2 Serological Sciences Center of Excellence, NCI/NIAID U54

(2017, Spring) American Heart Association Vascular Wall Bio BSc1 Peer Review group

(2016, Fall) American Heart Association Vascular Wall Bio BSc1 Peer Review group

(2016, June) NIH: NHLBI- AICS Study Section- Early Career Reviewer

(2016, Spring) American Heart Association Vascular Wall Bio BSc1 Peer Review group

(2015, Fall) American Heart Association Vascular Wall Bio BSc1 Peer Review group

(2015) Louisiana Clinical and Translational Science Center: LACaTS Peer Reviewer

(2015, Spring) American Heart Association Vascular Wall Bio BSc1 Peer Review group

(2014, Fall) American Heart Association Vascular Wall Bio BSc1 Peer Review group

(2014, Spring) American Heart Association Vascular Wall Bio BSc1 Peer Review group

(2014) Louisiana Clinical and Translational Science Center: LACaTS Peer Reviewer

(2014) NIH: Center for Scientific Review (CSR)- Early career reviewer (ECR) Program

Fellowships / Salary awards:

(2009-2011) National Institutes of Health- K99: \$89,500/yr

email: imungrue@yahoo.com

http://www.medschool.lsuhsu.edu/pharmacology/mungrue_home.aspx

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(2006-2008) Heart and Stroke Foundation of Ontario- Research Fellowship: \$40,000/yr

(2003-2006) Canadian Institutes of Health Research- Fellowship: \$50,000/yr

(2003-2009) Heart and Stroke Foundation of Ontario- Stroke Research Fellowship Award- Phase 1 (**Awarded to the highest rated applicant** in the Heart and Stroke Foundation of Ontario-Stroke research competition): (Declined in favor of CIHR fellowship)

(2003-2006) Heart and Stroke Foundation/Canadian Institutes of Health Research/Canadian Stroke Network/Astra Zeneca- Focus on Stroke Training Initiative- Post Doctoral Fellowship: (Declined in favor of CIHR fellowship)

(2000-2003) Canadian Institutes of Health Research/Heart and Stroke Foundation Partnership- Doctoral Research Award: \$19000/yr

(2000) Heart & Stroke/Richard Lewar Centre of Excellence- Doctoral Research Award (Declined in favor of CIHR doctoral research award)

Travel / Presentation awards:

(2016) American Heart Association/American Stroke Association Research Leaders Academy- Invited participant: Travel and accommodation costs covered.

(2014) American Heart Association- ATVB Travel Award for Young Investigators: \$500

(2013) Louisiana Board of Regents- Travel Grant for Emerging Faculty: \$1200

(2007) Kern Aspen Lipid Conference- Early Career Investigator Travel Award: \$750 & \$350 registration fee

(2004) Canadian Society of Atherosclerosis, Thrombosis and Vascular Biology-Trainee Travel Award- The XIIIth International Vascular Biology Meeting: \$1000

(2001) The American Physiology Society: Liaison with Industry- Novel Disease Model Award: \$500

(2000) Heart & Stroke Foundation/Richard Lewar Centre of Excellence- Poster Competition-3rd Place: \$100

(1999) Canadian Cardiovascular Society- CSTAVB Young Investigator's Award Finalist: \$1000

(1999) Dept. of Lab Med & Pathobiology- Dutkevich Travel Award: \$500

email: imungrue@yahoo.com
http://www.medschool.lsuhsu.edu/pharmacology/mungrue_home.aspx
2224 Royal St, New Orleans, LA, 70117
(310) 909-6934

PUBLICATIONS

Original Reports / Reviews:

(h-index: 19; Corresponding author^{**}: 5; Trainees underlined)

- 1) Wallach I, et al (**Mungrue IN**): Machine learning is a Viable Alternative to High Throughput Screening: A 281 Target Case study. **Submitted** (2022) *Nature* **xx(x)**: xxxx-xxxx. (Impact factor: x.x)
- 2) Rivera DC, Sylvester CF, Nguyen LO, and **Mungrue IN^{**}**: Novel roles for the mTOR-ATF4-activated gene, Chac1, in skeletal muscle. **Submitted** (2022) **xx(x)**: xxxx-xxxx. (Impact factor: x.x)
- 3) Nomura Y, Sylvester CF, Nguyen LO, Kandeel M, Hirata Y, **Mungrue IN** and Oh-Hashi K: Characterization of the 5'-flanking region of the human and mouse CHAC1 genes. **Biochem Biophys Rep** (2020) **24**: 100834. (Impact factor: 1.7)
- 4) Kaye AD, Manchikanti L, Novitch MB, **Mungrue IN**, Anwar M, Jones MR, Helander EM, Cornett EM, Eng MR, Grider JS, Harned ME, Benyamin RM, Swicewood JR, Simopoulos TT, Abdi S, Urman RD, Deer TR, Bakhit C, Sanapati M, Atluri S, Pasupuleti R, Soin A, Diwan S, Vallejo R, Candido KD, Knezevic NN, Beall D, Albers SL, Latchaw R, Prabhakar H and Hirsch JA: Responsible, Safe, and Effective Use of Antithrombotics and Anticoagulants in Patients Undergoing Interventional Techniques: American Society of Interventional Pain Physicians (ASIPP) Guidelines. **Pain Physician** (2019) **22 (1S)**: S75-128. (Impact factor: 3.4)
- 5) Perra L, Balloy V, Foussigniere T, Moissenet D, Petat H, **Mungrue IN**, Touqui L, Corvol H, Chignard M and Guillot L: CHAC1 is differentially expressed in normal and cystic fibrosis bronchial epithelial cells and regulates the inflammatory response induced by *Pseudomonas aeruginosa*. **Frontiers in Immunology** (2018) **9 (2823)**: 1-12. (Impact factor: 6.4)
- 6) Sun Y, Atmadibrata B, Yu D, Wong M, Liu B, Ho N, Ling D, Tee AE, Wang J, **Mungrue IN**, Liu PY and Liu T: Up-regulation of LYAR induces neuroblastoma cell proliferation and survival. **Cell Death and Differentiation** (2017) **24(9)**: 1645-1654. (Impact factor: 8.3)
- 7) Delgado-Peraza F, Ahn KH, **Mungrue IN**, Mackie K, Kendall DA & Yudowski GA: Mechanisms of biased beta-arrestin mediated signaling downstream from the cannabinoid receptor 1. **Molecular Pharmacology** (2016) **89(6)**: 618-629. (Impact factor: 4.1)
- 8) Crawford RR, Prescott ET, Sylvester CF, Higdon AN, Shan J, Kilberg MS & **Mungrue IN^{**}**: Human CHAC1 Protein Degrades Glutathione and mRNA Induction is Regulated by the Transcription factors ATF4 and ATF3 and a Bipartite ATF/CRE Element. **Journal of Biological Chemistry** (2015) **290(25)**: 15878-91. (Impact factor: 4.7)
- 9) Xia H, Queiroz T, Sriramula S, Feng Y, Johnson T, **Mungrue IN** & Lazartigues E: Brain ACE2 overexpression reduces DOCA-salt hypertension independently of endoplasmic

email: imungrue@yahoo.com

http://www.medschool.lsuhsu.edu/pharmacology/mungrue_home.aspx

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(310) 909-6934

Imran Mungrue

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reticulum stress. **American Journal of Physiology-Reg** (2015) **308(5)**: R370-8. (Impact factor: 3.5)

10) Crawford RR, Higdon AN, Casey DB, Good DB & **Mungrue IN****: Multiple Lithium-Dependent brugada Syndrome Unmasking Events in a Bipolar Patient. **Clinical Case Reports** (2015) **3(1)**: 14-18. (Citation count: 6)

11) Mao HZ, Ehrhardt N, Bedoya C, Gomez JA, DeZwaan-McCabe D, **Mungrue IN**, Kaufman RJ, Rutkowski DT, and Peterfy M: Lipase Maturation Factor 1 is Induced by Endoplasmic Reticulum Stress Through Atf6 α Signaling. **Journal of Biological Chemistry** (2014) **289(35)**: 24417-27. (Impact factor: 4.7)

12) Prescott ET & **Mungrue IN****: ABCC6 Out from the Cold: Identification of the ABCC6 Substrate as a Therapy for Pseudoxanthoma Elasticum and Cardiovascular Disease. **Austin Journal of Pharmacology and Experimental Therapeutics** (2014) **2(5)**: 1-2.

13) Martin LJ, Lau E, Singh H, Vergnes L, Tarling E, Mehrabian M, **Mungrue IN**, Xiao S, Shih D, Castellani L, Ping P, Reue K, Stefani E, Drake T, Bostrom KI & Lusic AJ: Response to Pomozi et al Research Commentary. **Circ Research** (2013) **112(11)**: e152-153. (Impact factor: 11.9)

14) Kim JB, Deluna A, **Mungrue IN**, Vu C, Pouldar D, Civelek M, Orozco L, Wu J, Wang X, Charugundla S, Castellani LW, Rusek M, Jakobowski H & Lusic AJ: The effect of 9p21.3 coronary artery disease locus neighboring genes on atherosclerosis in mice. **Circulation** (2012) **126(15)**: 1896-1906. (Impact factor: 15.2)

15) Martin LJ, Lau E, Singh H, Vergnes L, Tarling EJ, Mehrabian M, **Mungrue IN**, Xiao S, Shih D, Castellani L, Ping P, Reue K, Stefani K, Drake TA, Bostrom K & Lusic AJ: ABCC6 localizes to the mitochondria-associated membrane. **Circ Research** (2012) **111(5)**: 516-520. (Impact factor: 11.9)

16) **Mungrue IN****, Zhao P, Yao Y, Meng H, MacLellan WR, Drake TD, Bostrom KI & Lusic AJ: ABCC6 deficiency causes increased infarct size and apoptosis in a cardiac ischemia-reperfusion model in mice. **ATVB** (2011) **31(12)**: 2806-2812. (Impact factor: 6.3)

17) Romanoski CE, Che N, Yin F, Mai N, Puoldar D, Civelek M, Pan C, Lee S, Vakili L, Yang WP, Kayne P, **Mungrue IN**, Araujo JA, Berliner JA & Lusic AJ: A network for activation of human endothelial cells by oxidized phospholipids: A critical role of heme oxygenase 1. **Circ Research** (2011) **109(5)**: e27-41. (Impact factor: 11.9)

18) Ghazalpour A, Bennett B, Petyuk VA, Orozco L, Hagopian R, **Mungrue IN**, Farber CR, Sinsheimer J, Kang HM, Furlotte N, Park C, Wen P, Brewer H, Weitz K, Camp D, Pan C, Yordanova R, Neuhaus I, Tilford C, Siemers N, Gargalovic P, Eskin E, Kirchgessner T, Smith DJ, Smith R & Lusic AJ: Comparative analysis of Proteome and Transcriptome variation in mouse. **PLOS Genetics** (2011) **7(6)**: e1001393. (Impact factor: 8.7)

19) **Mungrue IN****, Pagnon J, Kohannim Q, Gargalovic PS & Lusic AJ: CHAC1/MGC4504 is a novel proapoptotic component of the unfolded protein response, downstream of the

email: imungrue@yahoo.com

http://www.medschool.lsuhsu.edu/pharmacology/mungrue_home.aspx

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Imran Mungrue

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ATF4-ATF3-CHOP cascade. **Journal of Immunology** (2009) **182(1)**: 466-476. (Impact factor: 5.5)

20) Chen J, Saxena G, **Mungrue IN**, Lusis AJ & Shalev A: Thioredoxin-interacting protein: A critical link between glucose toxicity and pancreatic beta cell apoptosis. **Diabetes** (2008) **57(4)**: 938-44. (Impact factor: 7.9)

21) Chen J, Hui S, Couto FM, **Mungrue IN**, Davis DB, Attie, AD, Lusis AJ, Davis R & Shalev A: Thioredoxin-interacting protein induces Akt/Bcl-xL signaling and pancreatic beta-cell mass and protects against diabetes. **FASEB J** (2008) **22(10)**: 3581-94. (Impact factor: 5.7)

22) **Mungrue IN** & Bredt DS: nNOS at a glance: implications for brain and brawn. **Journal of Cell Science** (2004) **117(13)**: 2627-2629. (Impact factor: 5.9)

23) **Mungrue IN**, Stewart DJ & Husain M: The Janus faces of iNOS. **Circ Research** (2003) **93(7)**: e74. (Impact factor: 11.9)

24) **Mungrue IN**, Bredt DS, Stewart DJ & Husain M: From Molecules to Mammals: What's NOS got to do with it? **Acta Physiol Scand** (2003) **179(2)**: 123-135. (Impact factor: 4.4)

25) **Mungrue IN**, You X, Kalair W, Afroze T, Gros R & Husain M: Conditional Expression of a Dominant Negative cMyb in Mouse Vascular Smooth Muscle Cells Decreases Neointima Formation. **Circ Research** (2003) **93(3)**: 314-321. (Impact factor: 11.9)

26) Gros R, You X, Baggio LL, **Mungrue IN**, Parker TG, Huang Q, Drucker DJ, & Husain M: Cardiac function in mice lacking the glucagon-like peptide-1 receptor. **Endocrinology** (2003) **144(6)**: 2242-2252. (Impact factor: 8.9)

27) Afroze T, Yang L, Wang C, Gros R, Kalair W, Hoque E, **Mungrue IN**, Zhu Z & Husain M: Calcineurin-independent regulation of PMCA4 in a mouse vascular smooth muscle cell line. **American Journal of Physiology- Cell** (2003) **285(1)**: C88-95. (Impact factor: 3.9)

28) Gros R, Afroze T, You X, Kabir G, Van Wert R, Kalair W, Hoque E, **Mungrue IN**, & Husain M: Plasma membrane Ca²⁺ ATPase over-expression in arterial smooth muscle increases vasomotor responsiveness and blood pressure. **Circ Research** (2003) **93(7)**: 614-621. (Impact factor: 11.9)

29) **Mungrue IN**, Husain M & Stewart DJ: The role of NOS in heart failure: Lessons from murine genetic models. **Heart Failure Reviews** (2002) **7(4)**: 407-422. (Impact factor: 4.5)

30) **Mungrue IN**, Gros R, You X, Pirani A, Azad A, Csont T, Schulz R, Butany J, Stewart DJ & Husain M: Cardiomyocyte over-expression of the iNOS in mice results in superoxide generation heart block and sudden death. **Journal of Clinical Investigation** (2002) **109(6)**: 735-743. (Impact factor: 16.9)

31) Palli SR, Ladd TR, Ricci AR, Primavera M, **Mungrue IN**, Pang ASD & Retnakaran A: Synthesis of the same two proteins prior to diapause and pupation in the spruce budworm,

email: imungrue@yahoo.com

http://www.medschool.lsuhsu.edu/pharmacology/mungrue_home.aspx

2224 Royal St, New Orleans, LA, 70117

(310) 909-6934

Imran Mungrue

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Choristoneura fumiferana. **Journal of Insect Physiology** (1998) **44(5)**: 509-24. (Impact factor: 2.4)

32) Gupta RS, Mukhtar T, & Singh B: Evolutionary relationships among photosynthetic prokaryotes (Heliobacterium chlorum, Chloroflexus aurantiacus, cyanobacteria, Chlorobium tepidum and proteobacteria): implications regarding the origin of photosynthesis. **Molecular Microbiology** (1999) **32(5)**: 893-906 (Acknowledgement **Mungrue IN**). (Impact factor: 5.4)

Book Chapters:

- 1) **Mungrue IN**, Husain M & Stewart DJ: The role of nitric oxide in heart failure. Publisher: Springer Verlag (2004) **113**: p18

Abstracts:

(**Corresponding author****: 7; Trainees underlined)

- 1) Li Z, Nguyen LO, Organ CL, Lefer DJ & **Mungrue IN****: Genetic inhibition of the UPR gene Chac1 preserves cardiac function in a murine model of pressure overload induced heart failure. Journal of Molecular and Cellular Cardiology 2017 **112**: 160
- 2) Crawford RR, Prescott ET & **Mungrue IN****: Genetic inhibition of Chac1 leads to dysregulation of body composition. Faseb J 2016 **30**: 717.3
- 3) Prescott ET, Sylvester CF, Crawford RR, & **Mungrue IN****: Knockout of the Pro-Apoptotic ER-Stress gene Chac1 in mice results in Embryonic Lethality and Activation of the Notch Pathway. Circulation Research 2015 **130**: A324.
- 4) Crawford RR, Rowe JS, Prescott ET & **Mungrue IN****: A role for CHAC1 in Acetaminophen Hepatotoxicity. Faseb J 2015 **29**: 937.9
Crawford RR: Grad student travel award; Graduate Student Best Abstract Award-3rd Place.
- 5) Crawford RR, Prescott ET & **Mungrue IN****: A Novel ATF4 Dependent ER-Stress Induced Transcriptional Unit Within the CHAC1 Promoter. Circulation 2014 **130**: A11113.
Mungrue IN: American Heart Association-ATVB Travel Award for Young Investigators.
- 6) Crawford RR, Higdon AN & **Mungrue IN****: CHAC1 degrades glutathione, sensitizing cells to oxidative stress. Faseb J 2014 April 28:663.10
Crawford RR: Graduate student travel award.
- 7) Xia H, Johnson T, **Mungrue IN** & Lazartigues E: ACE2 inhibits Endoplasmic Reticulum stress and autophagy associated to neurogenic hypertension. Faseb J 2013 April 9 27:929.1
- 8) Crawford RR, Higdon AN & **Mungrue IN****: CHAC1 catabolizes glutathione and mediates heme toxicity. Molecular Biology of the Cell 2013 **22**: (#1471).

email: imungrue@yahoo.com

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Imran Mungrue

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- 9) **Mungrue IN**, Pagnon J & Lusis AJ: CHAC1 is a novel member of the UPR, and mediates ATF4 signaling. Canadian Journal of Cardiology 2007 **21(Suppl C)**: 0501.
- 10) **Mungrue IN**, Gros R, You XM, Kabir G, Stewart DJ & Husain M: Conditional over-expression of human inducible nitric oxide synthase in arterial myocytes results in endothelial dysfunction and elevated blood pressure. Cardiovascular Pathology 2004 **13(3S)**: S70.
- 11) Handa S, **Mungrue IN**, You XM, Stewart DJ & Husain M: Inducible nitric oxide synthase over-expression in arterial myocytes exacerbates neointima formation and atherosclerosis. Cardiovascular Pathology 2004 **13(3S)**: S36.
- 12) Kabir MG, Chan T, Pirani A, Sadi AM, **Mungrue IN**, Gros R & Husain M: The Superoxide Scavenger Tempol Reduces Myocardial Infarct Size and Mortality in Mice. FASEB J. 2003 **17(5)**: A881.
- 13) **Mungrue IN**, Gros R, You X, Husain M & Stewart DJ: Impaired endothelium dependent vasodilation in mice with arterial myocyte over-expression of inducible nitric oxide (iNOS) is reversed with L-arginine and tetrahydrobiopterin (BH₄). Circulation 2002 **105(5)**: II-212.
- 14) **Mungrue IN**, Gros R, You X, Azad A, Stewart DJ & Husain M: Myocardial over-expression of inducible nitric oxide synthase (iNOS) in mice models human heart disease. FASEB J. 2001 **15(5)**: A783.
- 15) **Mungrue IN**, Gros R, You X, Stewart DJ & Husain M: Over-expression of inducible nitric oxide synthase in arterial smooth muscle cells of transgenic mice. Circulation 2000 **102(18)**: 733.
- 16) **Mungrue IN**, Husain M, You X, & Stewart D: Heart failure induced by conditional over-expression of inducible NO-synthase targeted to the heart of transgenic mice. Acta Physiol Scand. 1999 **167(S- 645)**: 33.
- 17) **Mungrue IN**, You X, Azad A, Stewart DJ & Husain M: Myocardial over-expression of human inducible nitric oxide synthase in transgenic mice is cardiotoxic. Circulation 1999 **100(18)**: 580.
- 18) You X, **Mungrue IN**, Afroze T & Husain M: Transgenic expression of a dominant negative cMyb in arterial smooth muscle cells of mice reduces intimal-medial thickening following carotid artery injury. Circulation 1999 **100(18)**: 2882.
- 19) You X, Afroze T, **Mungrue IN**, Backx P, & Husain M: Over-expression of plasma membrane Ca²⁺ ATPase-4 in arterial smooth muscle cells of transgenic mice inhibits intimal-medial thickening following carotid artery injury. Circulation 1999 **100(18)**: 2876.
- 20) **Mungrue IN**, Stewart D, You X, Azad A & Husain M: Myocardial expression of human inducible nitric oxide synthase in transgenic mice. Can J Cardiol. 1999 **15**: 116D.

email: imungrue@yahoo.com

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(310) 909-6934

Imran Mungrue

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21) **Mungrue IN**, Stewart D, You X, & Husain M: Regulated expression of human inducible nitric oxide synthase in arterial myocytes of mice. Can J Cardiol. 1999 **15**: 107D.

22) You X, **Mungrue IN**, Scrocchi L, Drucker D & Husain M: Altered hemodynamics in mice lacking the glucagon-like peptide 1 receptor. FASEB J. 1999 **13(4)**: A109.

Editorial board member:

Biomedicine & Pharmacotherapy (Associate Editor)

ISRN Physiology

External Reviewer:

Antioxidants and Redox Signaling: 2016-1

Arteriosclerosis Thrombosis and Vascular Biology

American Journal of Pathology: 2014-1

Biochemical Journal: 2014-1

Biological Research for Nursing: 2017-1

Brain Pathology: 2018-1

Cardiovascular Research

Cardiovascular Pathology

Cardiovascular Toxicology: 2016-1

Cell Physiology & Biochemistry: 2016-2, 2017-1

Cellular and Molecular Neurobiology: 2016-6, 2015-5, 2014-1

Cell Biochemistry and Function: 2016-1

Cell Metabolism

Circulation Research

Current Bioinformatics: 2017-3

Endocrine

European Journal of Cell Biology: 2016-1

Journal of Affective Disorders: 2015-1

email: imungrue@yahoo.com

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Journal of Cell Biology

Journal of Cellular Physiology: 2020-1

Journal of Clinical Investigation

PLOS One: 2017-1

Science

Scientific Reports (NPG): 2017-1

The Royal Society London-Philosophical Transactions: Biological Science

Cellular Physiology and Biochemistry: 2015-2, 2014-1

Austin Journal of Pharmacology and Therapeutics: 2014-2

International Research Journal of Medicine and Medical Science: 2015-1

World Journal of Biological Chemistry: 2016-1

World Journal of Diabetes: 2016-1

World Journal of Gastroenterology: 2017-1

Immunology Letters: 2020-1

STAFF/TRAINEES

Graduate Students:

(2013- 2016) Rebecca R. Crawford. PhD student- Pharmacology
(Currently Postdoc: St Jude Children's Research Hospital)

Awards:

(2016) Graduate Student travel award- ASPET Annual meeting at Experimental biology in San Diego, CA: \$1085

(2016) Selected for participation at the **St Jude National Graduate Student Symposium**: Travel and accommodation costs covered: St Jude Children's Research Hospital, Nashville, TN. **Percentile rank: 3%**; 44 students selected from >1800 applicants by faculty review based on potential for postgraduate work. Featured in a Louisiana Advocate [article](#) (largest state newspaper): 2016/01/17

(2015) Graduate Student **Best Abstract Award- 3rd Place**- ASPET/Division for Toxicology Annual meeting at Experimental biology in Boston, MA: \$200

(2015) Grad Student travel award- ASPET Annual meeting, Boston, MA: \$1085

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(2014) Grad Student travel award- ASPET Annual meeting, San Diego, CA: \$1085

Funding:

(2012-2017) Louisiana Board of Regents Superior Graduate Student Training Program in Integrative Pharmacological Sciences and Therapeutics- **Awarded to the highest ranked incoming student:** \$31,000 per year

Undergraduate Students:

(2017) Diana C. Rivera. Student Worker- University of New Orleans
(Currently- LSU-Health New Orleans- Physician's Assistant student: class of 2022)
Funding: (2017) LSU- Health New Orleans NSF-Undergrad Research Program

(2020) Lisa O. Nguyen. LSU-Health New Orleans- MD student; Research Rotation

(2016- 2017) Lisa O. Nguyen. Student Worker- Tulane University
(Currently- LSU-Health New Orleans- MD student: class of 2017-2021)
Funding:
(2016) LSU- Health New Orleans NSF-Undergraduate Research Program

(2013-2015) Charity F. Sylvester. Student Worker- Xavier University
(Currently- LSU-Health New Orleans- MD student: class of 2017-2021)
Awards:
(2014) Summer Medical and Dental Enrichment Program (SMDP) at Yale University School of Medicine
(2013) LSU-Health New Orleans Summer Research Program Poster Competition: **3rd place**, out of 75 students
Funding:
(2015) LSU- Health New Orleans NSF-Undergraduate Research Program
(2013) LSU- Health New Orleans Undergraduate Summer Research Program

(2014) Josef S. Rowe. Medical Student- LSU- Health New Orleans
(Currently- Anesthesiology Resident UAB Hospital, Birmingham, AL)
Funding: LSU- Health New Orleans Summer Research Internship Program

(2014) Ramakrishna V. Bysani. Undergraduate Student- Tulane University
Funding: LSU- Health New Orleans Undergraduate Summer Research Program

(2014) Lionel Williams. High school Student
Funding: LSU- Health New Orleans Summer Research Internship Program

(2013) Whitney M. Townsend. Undergraduate worker- University of New Orleans
Funding: High school & Undergraduate Summer Research Program

Postdoctoral Fellows:

(2013-2015) Eugenia C. Prescott PhD. (Duke)
Awards: (2014) FASEB MARC Grantsmanship Training Program Travel Award

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(2013) Ashlee N. Higdon PhD. (UAB)
(Currently- Medical writer Eli Lily)

Research Associates:

(2013-2014) Matt R. Deshotels MSc. Research Associate-I
(Currently- Medical student, LSU Health Shreveport)

(2012-2013) Tanya R. Johnson PhD. Research Associate-III

TEACHING

Didactic courses- 27 hours per year:

(2017- 2021) School of Nursing- Pharmacology for Nursing-Anesthesiology
NURS7408

Blood transfusion & Coagulation Therapy (2hr)
Antiplatelets, Anticoagulants & Thrombolytics (2hr)

(2016- 2021) School of Medicine- Disease and Therapy of the Hematologic System:
MCLIN 231

Anticoagulants (2hr)
Antianemics and Hemostatics (1hr)

(2015- 2021) Dental Hygiene Pharmacology: DHY 4101 (Course Director)

Principles- Pharmacokinetics (2hr)
Anticoagulants and Hemostatics (1hr)
Glucocorticoids (1hr)

(2014- 2021) Dental Pharmacology: DENT 2122 (Course Co-director)

Anticoagulants (1hr)
Glucocorticoids (1hr)

(2016- 2021) School of Medicine- Medicinal Pharmacology for Physicians Assistant and Graduate Students: PHARM 207

Anticoagulants (2hr)
Antianemics and Hemostatics (1hr)

(2016- 2021) Div of Graduate studies: CMB B: Cell & Molecular Biology: The Cell Cycle.

Lectures: Cell cycle 1 & 2 (2hrs)

(2014- 2021) Advanced Nursing Pharmacology (Fall): HLSC-6409

Antianemia drugs, Antiplatelets and Anticoagulants (1hr)

(2014- 2021) Nursing Pharmacology (Spring): HLSC-3409

Anti-inflammatory steroids (1hr)
Antianemia drugs and Anticoagulants (1hr)

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(2013- 2021) Nursing Pharmacology (Fall): HLSC-3409

Anti-inflammatory steroids (1hr)

Antianemia drugs (1hr)

Anticoagulants (1hr)

(2013- 2021) Care Nursing Pharmacology: HTHSCI-3409

Anti-inflammatory steroids (1hr)

Antianemia drugs (1hr)

Anticoagulants (1hr)

(2015-2016) Medical Pharmacology: PHARM 200

Anticoagulants (1hr)

Antianemics and Hemostatics (1hr)

(2013-2015) Division of Graduate studies: INTER 124: Cell & Molecular Biology: Cell signaling and cell cycle control.

Lectures: Cell cycle 1 & 2 (2hrs)

Professional mentoring:

(2018) Holy Cross School: Science Fair Judge.

(2017) Benjamin Franklin Elementary Math-Science School: Science Fair Judge.

(2017) Greater New Orleans Science and Engineering Fair: Junior (6-8 grade) Animal Science Division- Judge for poster presentations.

(2016) American Heart Association-Scientific Sessions- Research Leaders Academy: Faculty mentor.

(2015) LSU-Health-New Orleans- Dept of Physiology: External Judge: Paul S. Roheim Excellence in Physiology Research Prize - Awarded to the Graduate student with the Best Research Presentation.

(2013) American Society for Cell Biology Meeting: Judge- poster competition.

(2013) American Society for Cell Biology Meeting: Table Leader: Careers in the era of extended postdoctoral fellowships.

(2012, 2013, 2014, 2015) LSU-Health New Orleans- Graduate research day: Judge- poster and oral presentation competitions.

LECTURES

(2017) LSU- Health New Orleans- Dept of Physiology Seminar Series- A novel role for the UPR gene CHAC1 in muscle

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(2016) New Orleans BioInnovation Center (NOBIC)- University Showcase- LSU- Health New Orleans Representative- Joy Theater- New Orleans: Poster presentation: A Novel method for simultaneous whole proteome quantification

(2016) Tulane University- School of Medicine- Pharmacology; Invited Seminar: Characterization of the Novel UPR gene Chac1 in Atherosclerosis and Cardiovascular Disease

(2014) LSU- Health New Orleans- Dept of Genetics Seminar Series- Translating systems biology insights into clinical therapy: roles of CHAC1 in cell signaling

(2013) LSU Health Shreveport- Dept of Pathology; Invited seminar: Examining the regulation, function and contribution of CHAC1 to cardiovascular disease: "Found in Translation"

(2012) LSU- Health New Orleans- Dept of Physiology Seminar Series- Exploring roles of the ER-stress inducible gene CHAC1 in apoptosis signaling and atherosclerosis in mice

(2009) NIH Program Project External Review- Project 3 Aim 3: Progress on understanding ABCC6

(2008) NIH Program Project Group Weekly Seminar- Characterization of CHAC1, a novel pro-apoptotic member of the UPR

(2007) Canadian Cardiovascular Society Annual Meeting- CHAC1 is a novel member of the UPR, and mediates ATF4 signaling

(2007) NIH Program Project Group Annual Retreat- Role of TXNIP in atherosclerosis and lipid metabolism: mechanisms and mouse models

(2003) Experimental Biology Meeting-Invited speaker: American Physiology Society Symposium- Molecular Regulation of Nitric Oxide Synthase Activity: Conditional and tissue-specific over-expression of NOS isoforms in transgenic mice

(2003) Ontario Science Center- Healthfest 2003- Canadian Institutes of Health Research representative: Examples of transgenic mice models for the study of cardiovascular disease

(2003) St Joseph's High School: Guest lecturer: Careers in Biology

(2003) Canadian Hypertension Society, Ontario Chapter-Annual Spring Conference: Hypertension in Transgenic Mice with Conditional Arterial Smooth Muscle Specific Over-expression of iNOS is a Result of Impaired Endothelial Function

(2002) The Toronto General Hospital, Cardiology- Research Rounds: Conditional Cardiac and Arterial Over-expression of iNOS in Mice, Consequences for Cardiovascular Disease

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(2002) Canadian Hypertension Society, Ontario Chapter-Annual Spring Conference: Conditional Over-expression of Human Inducible Nitric Oxide Synthase (iNOS) in Arterial Myocytes of Mice

(2002) Lab Medicine & Pathobiology Research Day-PhD Oral competition (2nd Place of ~100 candidates): Myocardial Over-expression of Human Inducible Nitric Oxide Synthase (iNOS) in Mice Models Human Heart Disease

(2001) Lab Medicine & Pathobiology Research Day- PhD Oral competition (5 finalists selected from ~100 students): Myocardial Over-expression of Human Inducible Nitric Oxide Synthase (iNOS) in Mice Models Human Heart Disease

(2000) Lab Medicine & Pathobiology Research Day- PhD Oral competition (5 finalists selected from ~100 students): Myocardial Over-expression of Human Inducible Nitric Oxide Synthase (iNOS) in Mice Models Human Heart Disease

(2000) Toronto General Hospital Research Institute Annual Retreat: Myocardial Over-expression of Human Inducible Nitric Oxide Synthase (iNOS) in Transgenic Mice Models Human Heart Disease

(2000) St. Michael's Hospital, Cardiology- Research Rounds: Genetic Manipulations of the Mouse Genome/Conditional Cardiac iNOS Over-expression (A Murine Model of Dilated Cardiac Myopathy)

(1999) Canadian Cardiovascular Society Annual Meeting: Myocardial Expression of Human Inducible Nitric Oxide Synthase in Transgenic Mice

Meetings:

International Society for Heart Research (ISHR) North American Annual Scientific Meeting- New Orleans- May-2017: **Session#6 Chair:** Signaling Mechanisms in Heart Failure

American Heart Association Scientific Sessions- New Orleans- Nov 2016

Gulf Coast Vascular Biology Consortium Meeting- Shreveport- Aug 2016

American Heart Association/American Stroke Association Research Leaders Academy- San Antonio- July 2016

Atherosclerosis Thrombosis and Vascular Biology Meeting- Nashville- May 2016

Louisiana State University Health Sciences Center- Cardiovascular Centers Joint Retreat- Oct 2015

AHA-Basic Cardiovascular Sciences Meeting- New Orleans- Jul 2015

American Heart Association- Scientific Sessions- Chicago- Nov 2014

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FASEB Meeting- Apr 2014

American Society for Cell Biology Annual Meeting- New Orleans- Dec 2013

K-Award Investigator's Meeting- Division of Cardiovascular Sciences, National Heart Lung and Blood Institute- Jul 2013

New Frontiers in Ultra High Throughput Biology- UCLA Symposium- Feb 2009

Systems Approaches to Cardiac Biology & Medicine- UCLA Symposium- Feb 2009

Kern Lipid Conference- Aspen Colorado- Aug 2007

Canadian Cardiovascular Society Meeting- Quebec City- 2007

Atherosclerosis Thrombosis and Vascular Biology Meeting- Chicago- 2006

International Vascular Biology Meeting- Toronto- 2004

FASEB Meeting- 2003

American Heart Association- 2002

FASEB Meeting- 2001

American Heart Association- 2000

American Heart Association- 1999

Canadian Cardiovascular Society Meeting- 1999

FASEB Meeting- 1999

COMMITTEES

Early Career Investigator Planning Committee: International Society for Heart research (ISHR) North America Meeting- 2017

Participated in organizing and planning ECI committee events for the North American Society annual scientific meeting

LSU- Health New Orleans School of Graduate Studies: First Year Advisory Committee

Mentoring new graduate students during preliminary lab rotations

LSU- Health New Orleans Department of Pharmacology: Graduate Training Committee

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Participating in the maintenance and development of ideas to improve the Pharmacology Graduate Program. Including recruitment of new graduate students, maintaining curriculum standards and input of new ideas

LSU-Health-New Orleans: Department of Pharmacology: Graduate Committee & Graduate Supervisor:

Rebecca R Crawford: PhD (2016)

Andhra University: Dept of Pharmaceutical Sciences: External Thesis Adjudicator:

Deepthi Rapaka: PhD (2016); Mentor: Akula Annapurna (Assoc Professor)

LSU-Health-New Orleans: Department of Pharmacology: Graduate Committee:

Ms Kusma Pyakurel: PhD (2016); Mentor: Hamid Boulares

LSU-Health-New Orleans: Department of Pharmacology: Graduate Committee:

Ms Harshita Chodavarapuy: PhD (2017); Mentor: Eric Lazartigues

LSU-Health-New Orleans: Department of Pharmacology: Graduate Committee:

Mr Abdelmetalab Tarhuni: PhD (2017); Mentor: Hamid Boulares

LSU-Health-New Orleans: Department of Pharmacology: Graduate Committee:

Mr Jeffrey Wang: MD/PhD (2019); Mentor: Hamid Boulares

LSU-Health-New Orleans: Department of Pharmacology: Graduate Committee:

Ms Snigdha Mukerjee: PhD (2019); Mentor: Eric Lazartigues

LSU-Health-New Orleans: Department of Pharmacology: Graduate Committee:

Mr John Patrick Connick: PhD (2020); Mentor: Wayne Backes

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